REMARKS

The present response is intended to be fully responsive to all points of rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application is respectfully requested.

Claims 1-28 are pending in this case. Claims 1-11 have been rejected under 35 U.S.C. § 101. Claims 1-28 have been rejected under 35 U.S.C. § 103(a). Independent claims 1, 12, 23, 27-28 have been amended.

With respect to the Examiner's 35 U.S.C. § 103(a) rejections, Applicant has reviewed the cited art and respectfully submits that the art fails to disclose or suggest the Applicant's claimed invention. Therefore, Applicant respectfully traverses and requests favorable reconsideration.

Telephonic Interview

Applicant wishes to thank the Examiner for granting a telephonic interview on August 14, 2007. The interview participants included Examiner Paul Kim and Howard Zaretsky (Applicant's representative).

Response to 35 U.S.C. § 101 Rejections

The Examiner rejected claims 1-11 under 35 U.S.C. § 101 because the disclosed invention is inoperative and therefore lacks utility. In particular, the Examiner noted that images cannot be immediately viewed if zero percent of the selected study has been received.

In response, Applicant has amended claim 1 to recite language which makes the invention operative. In particular, claim 1 not recites means for permitting the user to interrupt the automatic publishing mode at any time for a selected study that has not yet been received in its entirety from the publication server, and immediately entering an interactive mode whereby a dynamic interactive viewing session is initiated between the user and the publication server.

Applicant believes that amended claim 1 and hence dependent claims 2-11 overcome the Examiner's rejection based on § 101 grounds. The Examiner is respectfully requested to withdraw the § 101 rejection.

Response to 35 U.S.C. § 103(a) Rejections

Claims 1-7, 9-10, 12-13, 15-18, 20-21, 23, 26-28:

The Examiner rejected claims 1-7, 9-10, 12-13, 15-18, 20-21, 23, 26-28 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2002/0016718 ("Rothschild") in view of U.S. Patent No. 6,574,629 ("Cooke"). Applicant respectfully submits that the prior art fails to disclose or suggest at least means for permitting the user to interrupt said automatic publishing mode at any time for a selected study that has not yet been received in its entirety from said publication server, and immediately entering an interactive mode whereby a dynamic interactive viewing session is initiated between the user and said publication server. Therefore, Applicant respectfully traverses the rejections and request favorable reconsideration.

While continuing to traverse the Examiner's rejections, Applicant, in order to expedite the prosecution, has chosen to clarify and emphasize the crucial distinctions between the present invention and the devices of the patents cited by the Examiner. Specifically, claim 1 (representative of independent claims 1, 12, 23, 27-28) has been amended to include a system for publishing studies over a communication network, comprising a study storage device for storing a plurality of studies, each study comprising one or more images, a publication server coupled to said communications network, said publication server operative to enter an automatic publishing mode wherein one or more studies from among said plurality of studies are automatically sent to a client computer coupled to said communications network as they become available on said study storage device without any intervention by a user, said client computer comprising means for receiving said one or more studies and storing them in a local cache, means for permitting the user to **interrupt said automatic publishing mode at any time** for a selected study that has not yet been received in its entirety from said publication server, and **immediately enter an interactive mode** whereby a **dynamic interactive viewing session is initiated between the user and said publication server**, means for streaming image data from said publication server to said client computer during said interactive viewing session using progressive image streaming techniques in response to requests for one or more regions of interest (ROI), said ROIs corresponding to specific portions of an image as determined by the user's current viewing parameters and preferences, wherein said **progressive image streaming techniques utilize compression to transmit said ROI image data in encoded layers of increasing accuracy and quality whereby the most visually important image data is streamed first**, wherein a search for requested ROI image data is first performed on said local cache, and only if not found, said requested ROI image data is streamed by said publication server to said client computer, and

wherein transmission of ROI image data from said publication server during said interactive mode for said selected study is given higher priority over transmission of study data of non-selected studies which continues at lower priority.

Rothschild teaches a medical image management system and method that uses a central data management system to centrally manage the storage and transmission of electronic records containing medical images between remotely located facilities. The invention also provides a system and method for packaging an image for secure transmission, for tracking delivery and review of images and various attachments or augmentations to the image files and for providing lifetime storage of images that may be accessed by different authorized imaging centers and providers throughout the life of the patient. An image or file is packaged to be transmitted through a firewall of an image viewing location and stored in a relational database at the remote viewer. The image is delivered to a physician for ready accessibility at a remote viewer. Various files may be added to the patient's file at remote viewers. Overlays, reports and other attachments are created or input at image viewing stations and may packaged for delivery to authorized locations and are tracked and stored by a data center.

Cooke teaches a picture archiving and communication system (PACS) that includes plural core components arranged in a cluster. These core components include an archive station which includes long-term storage for storing image data, and a reviewing station which includes a display for displaying images based on received image data. Also included is a network gateway which interfaces to a non-core component so as to receive image data therefrom, and which routes the image data to at least one of the archive station and the reviewing station based on a set of rules in the network gateway. Finally, a database server manages access to the image data, and stores information relating to the image data.

It is submitted that the system of Rothschild is operative to send a **complete** image before the user can view it, as stated in paragraph [0104]: "The image file is received by the data center in a way that guarantees completion of the job before it is seen by processing logic." Further, Rothschild does not teach halting the current push or pull mode (i.e. automatic publishing mode) of operation for a selected study that has not yet been received in its entirety and immediately entering an **interactive mode** whereby a **dynamic interactive viewing session** is initiated between the user and the publication server.

In contrast, the present invention permits the automatic publishing mode for a selected study to be **halted** and the contents of images in the study to be viewed during a dynamic interactive viewing session that is immediately initiated for that study. During this dynamic interactive viewing session, image data is streamed on the fly from the publication server to the client computer in response to requests for regions of interest of the image. Transmission for non-selected studies still continues but a higher priority is given to requests for data of the selected study.

Image data is streamed from the publication server to the client computer during the interactive viewing session using progressive image streaming techniques in response to requests for one or more regions of interest (ROI). Regions of interest correspond to a specific portion of an image as determined by the user's current viewing parameters and preferences. Progressive image streaming techniques make use of image compression techniques to transmit the ROI image data in encoded layers of increasing accuracy and quality whereby the most visually important image data is streamed first. This provides for very fast convergence to high quality allowing a user to recognize important features of the study and begin a diagnosis (in the case of medical radiology image data, for example). These features are neither taught nor suggested by the combination of the Rothschild and Cooke references.

This interactive viewing session can last as long as the user desires. At some point, the user can end the interactive viewing session and the automatic publishing mode is resumed for the selected study. Image data already sent to the local cache in response to ROI requests does not need to be transmitted again.

Once the interactive mode is entered, the user can **interact** with the images in the study stored on the publication server. In response to the user interacting with the image in the viewing session, one or more requests for **regions of interest (ROIs)** are generated and sent by the client computer to the publication server. The selected study is displayed, **first** using local cached study data (if any) and **second** using data received from the publication server using **progressive image streaming techniques**. The missing layers of accuracy for each region of interest (ROI) are requested from the publication server by the client computer. In response, the publication server computer retrieves the requested data, encodes and transmits the corresponding data blocks to the client computer for subsequent display to the user. These

features are neither taught nor suggested by the combination of the Rothschild and Cooke references.

Streaming only the data within ROIs enables **prioritized transmission** of the currently viewed region of the image. Each time the user manipulates the image (i.e. zoom, pan, window level/width, etc.) the client determines which regions of interest image data is needed for. The requested ROI data is then **streamed on the fly** from the publication server to the client viewer application. This is performed dynamically on each image yielding very high speed efficiency. As a result, the user has the freedom to view any portion of the image, at any magnification, almost instantaneously. This feature is neither taught nor suggested by the combination of the Rothschild and Cooke references.

The Examiner has asserted that Cooke discloses interrupting the automatic mode and initiating an interactive viewing session. It is submitted that the Cooke reference does not teach interrupting the automatic publishing mode and entering an interactive mode whereby an interactive viewing session is immediately entered. Rather, Cooke discloses simply providing a button in the PACS application that is operative to **halt a queue** and a second button to **restart a queue** (col. 30, lines 29-31). Halting and re-starting a queue is substantially different from interrupting automatic publishing mode and immediately entering an interactive viewing session, with the subsequent streaming of regions of interest image data from the publication server to the client computer.

Applicant submits that the present invention does not simply start and stop a queue. In contrast, the present invention allows a user to halt the automatic transmission of a study and once halted to immediately enter into an **interactive mode whereby** a dynamic interactive viewing session is immediately initiated between the user and the publication server. It is during this interactive viewing session that a user can pan, zoom, perform window leveling, etc. on image within a study. In response to the particular user's viewing parameters and preferences, the client computer may require image data for regions of interest corresponding to the particular view the client is requesting. In response to the requests for particular ROIs, the client computer first looks in its local cache for data already transmitted from the publication server. If it finds the data, it uses the locally cached data. It may be that data transmission for the particular study hasn't even begun or that some data has been transmitted but it is not associated with the requested ROIs. Thus, if the client computer does not find the requested ROI data, it generates

and sends one or more ROI requests to the publication server. The requested data is received by the client computer and placed in the local cache.

Neither the Rothschild nor Cooke references, either alone or in combination, teach halting the automatic download of a study and **immediately initiating** an interactive viewing session regardless of how much of the study was transferred (if any) whereby a user can request to view selected ROIs of an image **first searching locally cached data** and then **if not found** in the local cache, **requesting the ROIs from the publication server**.

The data is retrieved from the publication server using progressive image streaming techniques whereby entire images or sequence of images do not need to be transferred. Only the data necessary to satisfy the user's request and preference (i.e. zoom, pan, window level, etc.) are actually transmitted from the publication server to the client computer. In progressive image streaming, the most visually important information is sent first. This permits extremely fast convergence to high quality allowing users to recognize important features of the study and to begin working immediately. Streaming only the ROI data prioritizes the transmission of the currently viewed portion of the image. Neither of the Rothschild and Cooke references, either alone or in combination, teaches interactively viewing an image in an interactive mode at time before, during or after transmission of a study to the client computer. In fact, Cooke neither teaches nor suggests displaying the image once the queue is halted, since like Rothschild, an image can only be displayed after it is transmitted and received **in its entirety**.

To reject the claims as obvious under 35 U.S.C. §103(a) there must be some suggestion or motivation, either in the references themselves or in the prior art, to modify or combine teachings. Furthermore, the prior art references must teach all the claimed limitations. Application has reviewed the cited art and respectfully submits that the art fails to disclose or suggest the Applicant's claimed invention, and fails to teach each and every element and limitation of the claims rejected herein. Therefore Applicant respectfully traverses the rejections and requests favorable reconsideration.

For the reasons stated above, Applicant submits that independent claims 1, 12, 23, 27-28 and hence dependent claims 2-7, 9-10, 13, 15-18, 20-21 are not obvious in light of the combination of Rothschild and Cooke. The Applicant respectfully traverses the rejection of claims 1-7, 9-10, 12-13, 15-18, 20-21, 23, 26-28 and submits that the presently claimed invention

are patently distinct over Rothschild in view of Cooke. The Examiner is respectfully requested to withdraw the rejection based on 35 U.S.C. §103(a).

Claim 1:

The Examiner rejected claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Rothschild in view of Applicant's admitted prior art ("ADMITTED PRIOR ART") and further in view of Cooke. Applicant respectfully submits that the prior art fails to disclose or suggest at least means for entering an interactive mode whereby the automatic mode is interrupted and an interactive viewing session is initiated for immediately viewing one or more regions of interest (ROIs) of a selected study, regardless of the portion if any of the selected study already transmitted, first using any image data already locally cached, and second sending interactive ROI requests for missing image data to the publication server whereby required study data not in the local cache is received from the publication server using progressive image streaming techniques. This feature is neither taught nor suggested by Rothschild, ADMITTED PRIOR ART or Cooke, either alone or in combination.

For the reasons stated above, Applicant submits that claim 1 is not obvious in light of the combination of Rothschild, ADMITTED PRIOR ART and Cooke. The Applicant respectfully traverses the rejection of claim 1 and submits that the presently claimed invention is patently distinct over Rothschild in view of ADMITTED PRIOR ART and further in view of Cooke. The Examiner is respectfully requested to withdraw the rejection based on 35 U.S.C. §103(a).

Claims 8, 11, 14, 19, 22, 24-25:

The Examiner rejected claims 8, 11, 14, 19, 22, 24-25 under 35 U.S.C. § 103(a) as being unpatentable over Rothschild in view of U.S. Patent Publication No. 2006/0031372 ("Krishnan").

Krishnan teaches a system and method for prioritized transmission of scalable compressed data are provided, the system including a database server for receiving an interactive prioritization request from a client and prioritizing transmission of the compressed data relative to a bin optimization in response to the interactive prioritization request. The method includes receiving an interactive prioritization request from a client, prioritizing transmission of the

compressed data relative to the bin optimization in response to the interactive prioritization request and transmitting the prioritized compressed data to the client.

In light of the arguments supra, it is believed that amended independent claims 1, 12, 23, 27-28 overcome the rejections based on 35 U.S.C. §103(a). Thus, it is believed that dependent claims 8, 11, 14, 19, 22, 24-25 overcome the rejections based on 35 U.S.C. §103(a) as well. Applicant respectfully submits that the prior art fails to disclose or suggest at least means for interrupting an automatic publishing mode and immediately switching to an interactive mode in response to a command received from a user before transmission of data for a study selected by said user is complete. Therefore, Applicant respectfully traverses the rejections and request favorable reconsideration.

Conclusion

In view of the above amendments and remarks, it is respectfully submitted that independent claims 1, 12, 23, 27-28 and hence dependent claims 2-11, 13-22, 24-26 are now in condition for allowance. Prompt notice of allowance is respectfully solicited.

In light of the Amendments and the arguments set forth above, Applicant earnestly believes that they are entitled to a letters patent, and respectively solicit the Examiner to expedite prosecution of this patent applications to issuance. Should the Examiner have any questions, the Examiner is encouraged to telephone the undersigned.

Customer Number: 25937

Respectfully submitted,

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